WYOMING NATIVE PLANT SOCIETY
Box 1471
Cheyenne, WY 82003

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**Treasurer's Report** - Balance as of May 15, 1991: $188.57; deposits: dues $191.50, scholarship fund $157.50, postage reimbursement $1.00; disbursements: newsletter printing $19.97, stamps $29.00; new balance as of October 25, 1991: $489.60. RD

**Annual Meeting** - The annual meeting was called to order by Secretary-Tresurer Robert Dorn at 8:30 am on June 22, 1991, at the Big Horn Canyon Recreation Area Visitor Center. Twelve persons were in attendance. The following officers were elected for the coming year: President - Nancy Kastning, Vice-President - Dick Scott, Secretary-Treasurer - Robert Dorn, Board Member - Walt Fertig. Mary Neighbours is the carryover Board Member. No unfinished business was brought up. For new business, a short discussion ensued on whether or not we should change the scope of the annual meeting. It was decided to make no changes. Next year's meeting was scheduled for the Beaver Rim-South Pass area around the end of June. The meeting adjourned at 8:50 on a motion by Erwin Evert, seconded by Jennifer Whipple. RD

**Teton County Chapter Forms** - Wildflower enthusiasts in Teton County met on September 18. Thirty people attended an informative slide-illustrated presentation on rare plants of Wyoming by Hollis Marriott of the Nature Conservancy. Hollis described the three-year project on rare and sensitive plants that she is conducting for Grand Teton National Park. Hollis also promised to lead a summer field trip designed to teach participants how to gather field data scientifically.

On October 15, thirty-three people attended the second meeting of the Teton Chapter. Seasonal National Park Service naturalist Linelle Wagner presented a slide-illustrated program, "Wildflowers of Grand Teton." Many of the folks attending the first two meetings of the new chapter have already joined the Wyoming Native Plant Society, while most of the remainder indicated their intention to join soon.

The first chapter project will be to assist in the spreading of native plant seed gathered by chapter member Diana Osuna in Grand Teton National Park. The seed will be used to revegetate an old road from which asphalt has just been removed.

Looks like the Teton Chapter is off to a good start! For information contact Katy Duffy, Box 26, Moose, WY 83012, (307)733-1078. KD

**Wyoming Plant Families**

Family 7: Rosaceae, Rose Family

This is the seventh largest family of flowering plants in Wyoming with 76 species. Common representatives include serviceberry, mountain mahogany, hawthorn, strawberry, ninebark, cinquefoil, plum, chokecherry, bitterbrush, apple, rose, raspberry, and mountain ash. The family is divided into at least four distinct groups, based largely on the fruit, and are usually classed as subfamilies. The most consistent unifying characteristics are the 5 separate petals and stipulate leaves ( with a pair of appendages at base of petiole), but there are exceptions to these. The diversity of the family can be seen in the following abbreviated description: Trees, shrubs, or herbs; leaves simple or compound, alternate or rarely opposite; flowers bisexual, or rarely unisexual, in various inflorescences; sepals usually 5, rarely 4 or more than 5; petals usually 5, rarely more or lacking; stamens usually many but sometimes 5 or 10; pistils 1 to many; ovary superior or inferior; styles 1-5; locules 1-5; fruit an achene, follicle, pome, drupe, or aggregation of drupelets. Because of this diversity, the easiest way to master the family is to learn to recognize the genera, many of which are already familiar as can be seen in the above list of common representatives. Refer to the figures for a sample of flower types and leaf shapes. Common names for the genera are: cinquefoil (Potentilla), chokecherry or cherry or plum (Prunus), spiraea (Spiraea), serviceberry (Amelanchier), bitterbrush (Purshia), hawthorn (Crataegus), and ninebark (Physocarpus). Find representatives of some of the genera and study the flowers, fruits, and leaves.

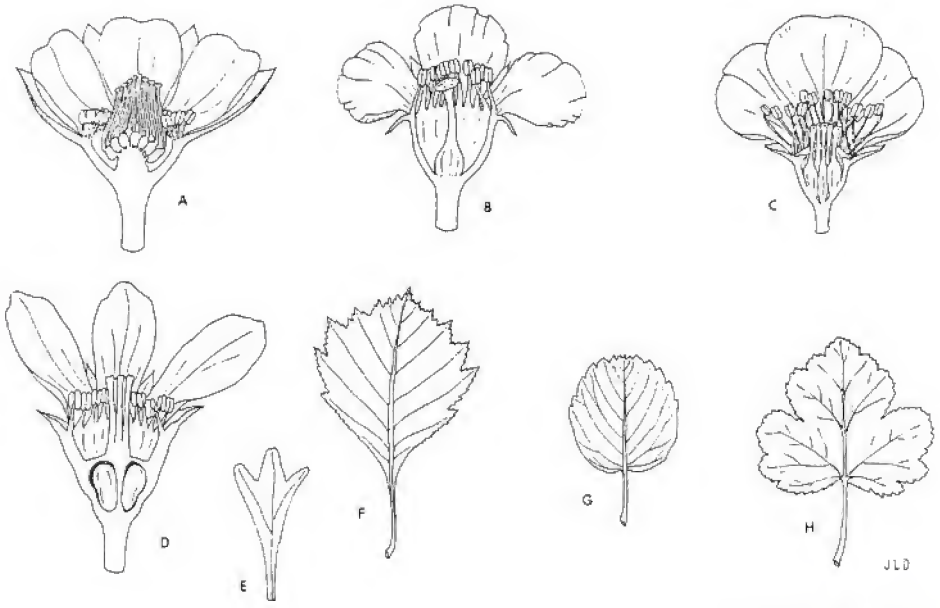
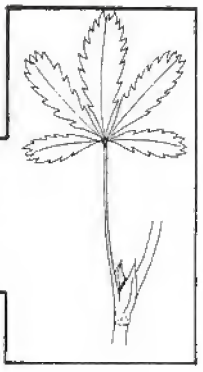



Figure. Rosaceae. A-D. Longitudinal sections of flowers: A. **Potentilla** (x 4); B. **Prunus** (x 5); C. **Spiraea** (x 10); D. **Amelanchier** (x 4). E-H. Leaves: E. **Purshia** (x 2.5); F. **Crataegus** (x 0.7); G. **Amelanchier** (x 0.7); H. **Physocarpus** (x 0.7).



Leaf of **Potentilla gracilis.** Note the pair of stipules at base of petiole.

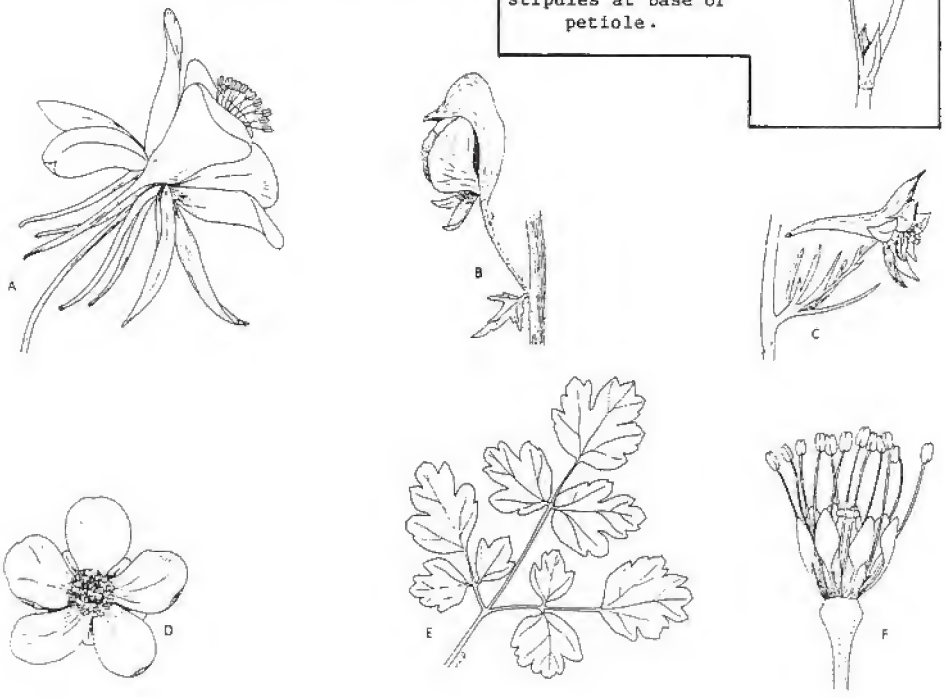



Figure. Ranunculaceae. A. Flower of **Aquilegia coerulea** (x 1). B. Flower of **Aconitum** (x 0.8). C. Flower of **Delphinium** (x 1). D. Flower of **Ranunculus** (x 1.7). E. Leaf of **Thalictrum** (x 0.8). F. Flower of **Actaea** (x 3).

Family 8: Ranunculaceae, Buttercup Family
This is the eighth largest family of flowering plants in Wyoming with 69 species. Nearly half of them are in one genus, Ranunculus, the buttercup. Other representatives include monkshood, baneberry, wind flower, columbine, marsh marigold, virgin's bower, larkspur, and meadow rue. This is another diverse family but not as diverse as the Rosaceae. The most consistent unifying characteristics are many stamens, a superior ovary, 1 style, usually 1 locule, and the fruit a follicle, achene, or berry (only baneberry). Like the Rosaceae, it is best to try to learn the genera. Refer to the figures for representatives. Common names for the genera are: columbine (Aquilegia), monkshood (Aconitum), larkspur (Delphinium), buttercup (Ranunculus), meadow rue (Thalictrum), and baneberry (Actaea). Find representatives of some of the these genera and study the flowers and later the fruits. RD

## What is GIS?

You are out in the field, enjoying a wonderful spring day. The sound of nature's symphony - the wind, water, and birds - captures your spirit and imagination. If there is a more beautiful place on this earth, you could care less! However, the reason you are here pulls at you, it's time to get back to work. Oh yeah, what a horrendous place to be, cataloging plants and vegetation in central Wyoming to be used towards natural areas selection and protection, and get paid for it! .

You've been told to map plant locations and vegetation mosaics. This information will be used in conjunction with other data to examine for areas that have been utilized for so long and to such a degree that native plants and plant communities are nowhere to be found. What areas have not been directly altered by human or domestic animal activities. Are there any locations that might harbor rare plants or 'pristine' vegetation? Are these areas on private or public lands?

One tool that is being used more frequently for land resource analysis, planning, and management is GIS - geographic information systems. What the blazes is GIS? A geographic information system is an automated, spatial data base management system. Oh, like that helps me. No wait, I understand now, an automated spatial data base management system. Yeah, right . . .

A GIS is used to to maintain spatial information, where something is located and information, or attributes, concerning the item. An item may be either a point, linear, or areal feature. In a GIS, these items are located by georeferencing them, which means recording their position with a set of coordinates. Usually geographic references are longitude and latitude or UTM coordinates. Locational precision and accuracy are a must when dealing with features such as property lines, roads, pipelines, and unique features, i.e. rare plant locations.

A common method of entering data into a GIS is digitizing the spatial data. When entering the data, a separate map layer or coverage is digitized for each piece of information, for example roads, powerlines, streams and rivers, residential areas, rare plant locations, or whatever locational item is of interest. Separate coverages are created for point, line, and areal features, the different data types are

not digitized together. Then the user edits the 'spaghetti' to make it useable. Once the data has been edited, it may be georeferenced from digitizer coordinates to real-world coordinates. This step enables the GIS user to measure lengths, perimeters, and areas or combine various coverages to derive new coverages.

Once the coverages are finished, correct, and useable, the GIS user builds attribute tables. Attribute tables contain information relating to the feature or features that are mapped. If you have mapped forest cover types, you would be interested in having information stored that relates to this feature. The forest cover type map may contain seven cover types and the attribute table stores information relating to the cover types. Of interest might be species present, age class structure, size class structure, site characteristics, and groundcover composition and structure.

This input stage is painstaking and time consuming, however after that the fun begins. You may ask questions of where something is located, the values related to the locations, and what are the site characteristics. If land use history is combined with this data, site characteristics and history might be used to locate a particular plant or plant community. A GIS may be linked with vegetation dynamics model for data input and analysis output, which may become new coverages and attribute tables in the GIS. Endless questions may be asked that normally might not be due to the cumbersome nature of the manual overlay process.

In a nutshell, field work in much more enjoyable; however important questions relating to land use and resource management might not be addressed without the use of GIS. The traditional biologist, ecologist, and resource manager probably uses maps, but feels overwhelmed by the thought of a computerized mapping system. If considered a tool that will help in the analysis, designation, monitoring, and protection of rare plant locations and natural areas, GIS will become a beneficial tool and eventually a welcome friend in the fight to reduce the loss of biodiversity. PA

Endangered Species Program

As some of you may be aware, the 1990 Notice of Review for plants published under the auspices of the U.S. Fish and Wildlife Service, is up for a revision. The last Notice of Review was published on February 21, 1990 (50 CFR Part 17, 6184-6229). The next Notice of Review is scheduled for publication in January, 1992. The Notice of Review is a government publication presenting an updated compilation of taxa (vascular plants or wildlife) native to the United States that are being reviewed for possible addition to the List of Endangered and Threatened species under the Endangered Species Act of 1973, as amended. This notice refers to these species as "candidate" species and using a code system, rates the amount of information currently known that could lead to a decision about listing them as either threatened or endangered. All plants "listed" for Wyoming are in the Notice of Review as Candidate species. There were 35 species listed for Wyoming in the 1990 notice.

Since its publication, the status of certain species have changed due to the availability of new information. On October 24, 1991, the Service held a technical meeting with professional and agency botanists about all the species currently on the list and others that may need to be included. This information will be compiled and summarized, then submitted for inclusion in

the 1992 Notice of Review. Be sure and contact the Service in mid-late winter for a copy of the latest notice. Keep in mind that the publishing schedule could vary, but you can contact me at the Service during the winter for an update.

One aspect that became very clear during the meeting was the importance of "networking" and commnicating with one another about plants. As the first botanist in the Cheyenne office of the U.S. Fish and Wildlife Service, it is very important that the lines of communication about Wyoming plants remain open so that I can receive the most up-dated information and best represent the conservation objectives of the agency. Although field observations are important, information on species needs to be substantiated with data, reports or published descriptions in order to facilitate better decision-making. It is important that local and regional botanists understand this point when requesting changes in a species' status.

I was thrilled to meet the local and regional botanists that attended the meeting but I would like to encourage members of the Wyoming Native Plant Society to stop by the office and visit with me. We are all part of the network and contribute to the knowledge base. This communication makes us more effective conservationists. Additionally, the U.S. Fish and Wildlife Service receives many publications intended for public distribution. We recently received two entitiled:

"Placing Animals and Plants on the List of Endangered and Threatened Species".

"Why Save Endangered Species?"

You can call me at the Cheyenne office if you would like a copy of these phamphlets and I'll be happy to drop them in an envelope and mail them to you.

I will be attending the next Wyoming Native Plant Society meeting and look forward to meeting WNPS members. Until then,

Virginia Moran
U.S. Fish and Wildlife Service
Cheyenne, Wyoming
(307) 772-2374

**WHAT IS RARE?** In Sweetwater Co., east of Flaming Gorge and just north of the WY/UT state line, grows a Rare Plant--a species found nowhere else in Wyoming. But wait! As we head south across the state line bound for the Utah canyon country, we see more and more of it. In fact this "rare" plant, the two-needle pinyon (Pinus edulis), forms extensive woodlands throughout much of the Great Basin, and its seeds are a food crop...how can it be rare? Meanwhile, in the northwest part of Wyoming, the bog bearberry (Arctostaphylos rubra or Arctous rubra) grows in a calcareous wetland on Shoshone National Forest--Swamp Lake. Represented in the lower 48 states by this single population, the bearberry is rare indeed. Or is it? A look in the literature reveals that it grows in the boreal (northern) zone of North America and Asia, where it is not uncommon. Finally, consider the Uinta greenthread (Thelesperma pubescens), a not-so-disgusting yellow composite. On flat-topped, mesa-like mountains near Burntfork and Lonetree, WY, the greenthread thrives in populations estimated to consist of thousands to tens of thousands of plants. In places it is not just a common species, but an ABUNDANT species--it often dominates the community of cushion and mat-forming plants in which it grows. But aside from four mountain summits within less than 100 sq. mi. in southwest Wyoming, the Uinta greenthread is found nowhere else in the world. Is this a Rare Plant?

With the concept of plant rarity so unclear, let us turn to Federal government (Feds) and The Nature Conservancy (TNC) for enlightenment. Starting with the Feds, we see that the US Fish and Wildlife Service lists the greenthread as a candidate Threatened species, specifically a "Category 2" candidate. It has been designated "Sensitive" by the Forest Service and Bureau of Land Management. The bearberry is being considered for Sensitive designation by the Forest Service, and the two-needle pinyon receives no attention whatsoever. TNC assigns the greenthread a rank of G1S1, and the bearberry is ranked at G5S1, as is the pinyon. The WY Natural Diversity Database, TNC's science program for the state, places the greenthread and bearberry on its Plant Species of Special Concern, **List 1** (highest priority), while the pinyon is relegated to **List 3**, which isn't even distributed to the public in most cases.

Obviously, it's not altogether obvious which plants are Rare Plants. What criteria must be met for a species to be included in a list of Plant Species of Concern, or to be listed as Threatened? Since when do we have sensitive plants in Wyoming? Are some rare plants of greater concern than others? Does rare imply endangered? And when is rarity merely an artifact of undercollecting--of lack of study? If you don't know the answers to these questions, tune in to the next issue for "WHAT IS RARE? Part II."---HJM

**Contributors This Issue** - PA = Peter Anderson, KD = Katy Duffy, RD = Robert Dorn, HJM = Hollis J. Marriott, VM = Virginia Moran.

Wyoming Native Plant Society
Box 1471
Cheyenne, WY 82003